Note on a Paper by M. Shajn. By E. M. Antoniadi.

On p. 544, vol. lxxxii., of the *M.N.*, the Secretaries have called attention to a paper by M. Shajn, published in Russian, in the *Bulletin de la Société astronomique de Russie* for 1912, in which he is alleged to have reached "much the same conclusions" as the present writer in 1916 "on the co-relation of the rate of melting of the Martian Polar Caps with the variation of sunspot activity."

Of course, the writer never saw this paper, or even any allusion to it. He does not know the Russian language; never heard of the author in question; and was ignorant, up to now, even of the existence of a Russian astronomical association. It is curious that in the annual review of works received by the Society prior to 1916 the writer could find no trace of the above *Bulletin*. It is also singular that the able and exhaustive yearly reviews on solar physics in *M.N.*, signed "A. F." and "F. J. M. S.," are silent, from 1912 to 1916 at least, on the subject of the Russian memoir. If, then, those having access to the astronomical publications of the whole world failed to take notice of M. Shajn's paper, the chances were against the writer's seeing it, considering the modesty of his library and the fact that in 1912 he was receiving only four astronomical serials of Western Europe.

The writer's inquiry into this question was bound to come as a sequel to his measures of the size of the Martian snow-caps on all drawings since 1856 and his exhaustive study of the polar whitishnesses or haze.* Having recognised that these whitishnesses are more frequent in the N. frigid zone than in the S. one, which confirms the fact that haze on Mars develops more readily over the yellow areas than over the grey ones; that the S. cap emerges larger than the N. one from the polar night, as forming in a longer winter; and that the detachment of Olympia from the N. snows, or of Novissima Thyle from the S. ones, is a phenomenon of yearly occurrence on the planet—he next found the diminution of the polar snows to be erratic. On considering the possible causes of such a deportment, the idea occurred to him that the melting of the Martian snow-caps could be subordinated to possible changes in the heat of the Sun. A careful treatment of the subject led to the confirmation of this suspicion, when the variations in the intensity of solar radiation, as evidenced by the diminution of the snows of the planet Mars, appeared as a small percentage of the whole.

The note by the Secretaries prompts the writer gladly to accord M. Shajn a priority of four years in the conception and probable demonstration of the relation in question. Yet the writer maintains intact the originality of his work and conclusions, and wishes to lay stress on the discrepancies due to changes in the atmosphere of Mars, leading to very marked divergences in the two curves, whereas those of M. Shajn are described as "nearly parallel." Thus the writer could find no agreement in 1862, 1873, and 1877 at least; and the micrometric

* These results have been embodied abridged in the *Mars Report, B.A.A.*, for 1911–12 (published in 1916), and shaped into a permanent ephemeris.

measures of the S. snow-cap by Dr. Barnard with the 36-in. Lick refractor in 1892 point to a slow melting at a time of almost maximum solar activity. Lastly, since M. Shajn's work stops in 1907, the present writer's demonstration that the melting of the Martian snow was slowest during the virtually unprecedented minimum of sunspots of 1911–1913 remains also absolutely original and cannot be wrested from him.

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